

RECEIVED
CENTRAL FAX CENTER

Serial No. 10/783,893
Page 6 of 14

APR 25 2007

IN THE CLAIMS

1. (currently amended) A multicarrier CDMA transmission method for multiplying transmit data individually by each code constituting orthogonal codes and transmitting each result of multiplication by a prescribed subcarrier, comprising the steps of:

assigning a plurality of different subcarriers to each user; and

performing multicarrier transmission of the transmit data of a user by the subcarriers

assigned, wherein

said performing step includes the steps of:

assigning M-number of orthogonal codes to a user;

converting transmit data to parallel data comprising M-number of symbols by a serial-to-parallel conversion;

multiplying an i th symbol of the parallel data individually by each code constituting i th orthogonal codes, where $i = 1, 2, \dots, M$;

adding corresponding results of multiplication from among the results of multiplication obtained for every symbol; and

transmitting each of the results of addition by the subcarrier assigned.

2. (canceled)

3. (original) A multicarrier CDMA transmission method according to claim 1, further comprising steps of:

assigning a plurality of subcarriers exclusively to each user; and

84211884_1

Serial No. 10/783,893

Page 7 of 14

applying beam-forming processing user by user and transmitting transmit data to each user by the subcarriers assigned.

4. (canceled)

5. (currently amended) A multicarrier transmission method for multiplying transmit data individually by each code constituting orthogonal codes and transmitting each result of multiplication by a prescribed subcarrier, comprising the steps of:

assigning the same subcarriers to a plurality of users and assigning plural different orthogonal codes to each user; and

transmitting the transmit data of each user by performing code multiplexing using said plural different orthogonal codes on the same subcarriers.

6. (original) A multicarrier CDMA transmission method according to claim 5, further comprising a step of applying identical transmit beam-forming processing to the transmit data of said plurality of users to which the same subcarriers have been assigned.

7. – 8. (canceled)

9. (currently amended) A transmitting apparatus of a mobile station in a multicarrier CDMA transmission system for multiplying transmit data individually by each code constituting orthogonal codes and transmitting each result of multiplication by a prescribed subcarrier, comprising for each user:

84211334_1

Serial No. 10/783,893

Page 8 of 14

means for assigning M-number of orthogonal codes to a user;

a serial/parallel converter for ~~subjecting~~ converting the transmit data to parallel data comprising M-number of symbols by a serial-to-parallel conversion;

a multiplier for multiplying ~~one-an~~ ith symbol of the parallel data, which has been ~~obtained by the serial-to-parallel conversion;~~ individually by each code constituting ith orthogonal codes ~~that have been assigned to a user, and similarly multiplying each symbol of the parallel data individually by each code constituting other orthogonal codes that have been assigned to said user~~ in said M-number orthogonal codes, where $i = 1, 2, \dots, M$;

a combiner for combining results of multiplication by corresponding codes of each of the orthogonal codes; and

a transmitting unit for performing multicarrier transmission of each of the combined results by a plurality of subcarriers that have been assigned to the user.

10. (canceled)

11. (original) A transmitting apparatus of a base station in a multicarrier CDMA transmission system for multiplying user data individually by each code constituting orthogonal codes and transmitting each result of multiplication by a prescribed subcarrier, comprising:

an array antenna comprising a plurality of antenna elements;

a beamforming unit for applying beam-forming processing to transmit data of a user and generating transmit data for each antenna element;

84211884_1

Serial No. 10/783,893

Page 9 of 14

a multiplier, which is provided for every antenna element, for multiplying one symbol of transmit data, to which the beam-forming processing has been applied, individually by each code constituting orthogonal codes that have been assigned to a user; and

a transmitting unit, which is provided for every antenna element, for performing multicarrier transmission of results of multiplication by a plurality of subcarriers that have been assigned on a per-user basis.

12. (original) A transmitting apparatus of a base station in a multicarrier CDMA transmission system for multiplying user data individually by each code constituting orthogonal codes, outputting results of multiplication and transmitting each result of multiplication by a prescribed subcarrier, comprising:

an array antenna comprising a plurality of antenna elements;

a beamforming unit for applying beam-forming processing to transmit data of a user and generating transmit data for each antenna element;

a serial/parallel converter, which is provided for every antenna element, for converting transmit data, to which the beam-forming processing has been applied, to parallel data;

a multiplier, which is provided for every antenna element, for multiplying one symbol of parallel data, which has been obtained by the serial-to-parallel conversion, separately by each code constituting orthogonal codes that have been assigned to a user and similarly multiplying each symbol of the parallel data individually by each code constituting other orthogonal codes that have been assigned to said user;

a combiner, which is provided for every antenna element, for combining results of multiplication by corresponding codes of each of the orthogonal codes; and

84211884_1

Serial No. 10/783,893

Page 10 of 14

a transmitting unit, which is provided for every antenna element, for performing multicarrier transmission of each of the combined results by a plurality of subcarriers that have been assigned on a per-user basis.

13. (original) A transmitting apparatus of a base station according to claim 11, wherein a plurality of identical carriers are assigned to a plurality of users, different orthogonal codes are assigned to each user, code multiplexing is performed on the same carriers on a per-antenna basis and transmit data of each user is transmitted.

14. (canceled)

84211884_1